

Net. Sec Report 1

Sec 3

معماريات

Problem 6:-

a) $d_{prop} = \frac{m}{s}$ seconds

b) $d_{trans} = \frac{L}{R}$ seconds

c) $d = d_{prop} + d_{trans} = \frac{m}{s} + \frac{L}{R}$ seconds

d) The last bit is put on the link after finishing transmission

e) by the time transmission finishes, first bit will still be on the link towards Host B

f) first bit should reach Host B before $t = d_{trans}$

g) $d_{trans} = d_{prop}$

$$\Rightarrow \frac{L}{R} = \frac{m}{s} \Rightarrow m = \frac{sL}{R} = \frac{2.5 \times 10^8 \times 120}{56 \times 10^3} = 536 \text{ km}$$

Problem 11:-

$$d_{proc_1} = d_{proc_2} = 0$$

For immediate transmission $\Rightarrow \frac{L}{R_2} = \frac{L}{R_3} = 0$

$$\begin{aligned} d_{\text{end-to-end}} &= \frac{d_1}{s_1} + \frac{d_2}{s_2} + \left[\frac{L}{R} \right] \rightarrow \text{From first host} + \frac{d_3}{s_3} \\ &= \frac{5 \times 10^6}{2.5 \times 10^8} + \frac{4 \times 10^6}{2.5 \times 10^8} + \frac{10^6}{2.5 \times 10^8} + \frac{1500 \times 8}{2 \times 10^6} \\ &= 46 \text{ ms} \end{aligned}$$

P23:

a) That is the transmission delay

$$\text{So, inter-arrival time} = \frac{L}{R_s}$$

b) it is possible for the 2nd packet to queue if

$$\frac{L}{R_s} + \frac{L}{R_s} + d_{\text{prop}} < \frac{L}{R_s} + \frac{L}{R_c} + d_{\text{prop}}$$

for queuing not to happen

$$2\frac{L}{R_s} + d_{\text{prop}} + T \geq d_{\text{prop}} + \frac{L}{R_s} + \frac{L}{R_c}$$

$$\Rightarrow T \geq \frac{L}{R_c} - \frac{L}{R_s}$$

P24: Fedex over-night delivery

For 100 Mbps link

$$\text{Transfer time} = \frac{4 \times 10^{12} \times 8}{100 \times 10^6} = 320000 \text{ s}$$

$$\approx 37 \text{ days}$$

clearly, Fedex will be a better choice